

### **REMARKS**

The Applicant hereby traverses the rejections of record and requests reconsideration and withdrawal of such in view of the remarks contained herein. Claims 21-34 are pending in this application.

#### **Rejection Under 35 U.S.C. § 103(a)**

Claims 21-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,616,461 to Bellinghausen et al (hereinafter "Bellinghausen") in view of U.S. Patent No. 6,011,319 to Kelly et al (hereinafter "Kelly").

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations. *see* M.P.E.P. § 2143. Without admitting that the second criteria is satisfied, the Applicant respectfully asserts that the Examiner's rejection fails to satisfy the first and third criteria.

#### **Lack of Motivation**

In the Current Action, the Examiner opines that it would have been obvious to modify Bellinghausen to include the circuit assembly (having power and electronic control circuits) as taught by Kelly. (see Current Action, pg. 3). However, the Applicant respectfully submits that such a modification would render Bellinghausen unsatisfactory for its intended purpose. Bellinghausen is drawn to mounting a bridge rectifier to a printed circuit board. As known to those of ordinary skill in the art, a bridge rectifier makes use of four diodes in a bridge arrangement to achieve full-wave rectification. Clearly, replacing the diodes of Bellinghausen with control circuits would prevent Bellinghausen from achieving full-wave rectification. Control circuits do not perform the same function as diodes. Therefore, the Examiner's proposed combination does not comport with the requirements of 35 U.S.C. 103.

The Applicant requests reconsideration and withdrawal of the 35 U.S.C. 103 rejection of record.

Failure to Teach or Suggest Each Limitation

Claim 21 recites “said first circuit board being disposed on a first side of said second circuit board” and “said second circuit board comprising...connectors disposed on a second side of said second circuit board.” In the Current Action the Examiner equates Bellinghausen, at FIG. 1 numeral 8 to a first circuit board, FIG.1 numeral 22 to a second circuit board, and FIG. 1 numeral 32 to connectors disposed on a second side of said circuit board. (*see* Bellinghausen FIG. 1; Current Action pgs. 2-3). However, the foregoing components of Bellinghausen do not meet the above claim limitations. Reference to Bellinghausen, at FIG. 1, makes clear that member 8 meets member 22 on the same side that connector 32 extends from member 22. As such, connector 32 and member 8 are on the same side of member 22 (e.g., a first side of a second circuit board). Therefore, Bellinghausen fails to teach or suggest at least connectors disposed on a second side of a second circuit board.

Claim 21 also recites “at least one heat sink attached to said first circuit board and contacting electronic components on said second circuit board.” In the Current Action the Examiner points to Bellinghausen, at col. 3 lines 26-34, to satisfy “at least one heat sink...” (*see* Current Action, pg. 3). However, at the Examiner’s citation Bellinghausen merely describes coupling a heat dissipating member to a bridge rectifier to dissipate heat from a molded heat sink by conduction. *see* Bellinghausen col. 3, lines 29-31. Further inspection of Bellinghausen reveals that Bellinghausen teaches away from using a heat sink in the configuration relied upon by the Examiner in rejecting the claim. Bellinghausen, at col. 3 lines 50-55, discloses that the surface of a bridge rectifier is in direct contact with a printed circuit board to help in dissipating the heat generated within the bridge rectifier by conduction. As such, Bellinghausen relies on a printed circuit board rather than a heat sink to dissipate heat. Also, reference to FIG. 1 shows that, when assembled, the Bellinghausen invention cannot employ a heat sink. The top surface of the bridge rectifier is in direct contact with the printed circuit board and its bottom surface is in direct contact with member 22. This configuration leaves no room for a heat sink. As such, Bellinghausen fails to teach

or suggest a heat sink attached to a first circuit board and contacting electronic components on a second circuit board as required by claim 21. Kelly is not relied upon to teach or suggest this missing limitation.

Claim 21 further recites “power and control signals distributed by said second circuit board to said plurality of blade elements coupled to said first circuit board.” In the Current Action the Examiner points to Kelly, at col. 4 lines 66-67, to satisfy “power and control signals distributed by a second circuit board...” (see Current Action, pg. 3). However, at the Examiner’s citation Kelly describes combining power and electronic control circuits in an economical manner to minimize package size and substrate area. see Kelly col. 4 line 66-col. 5, line 2. The express purpose of Kelly is to conserve substrate area; and in doing so, Kelly requires that power and electronic circuits be contained on a single substrate. see *id*; see Kelly figure 1. If Bellinghausen were modified according to the Examiner’s suggestion, a single board would be required. In such case, every element of the Applicant’s claimed invention would not be met. The Applicant respectfully submits that simply combining power and electronic control circuits to minimize substrate area does not teach or suggest power and control signals distributed by a second circuit board to a plurality of blade elements coupled to said first circuit board as required by claim 21. As seen, the Examiner’s proposed combination does not teach or suggest every element of the Applicant’s claimed invention. Therefore, the Examiner’s proposed combination fails to comport with the requirements of 35 U.S.C. 103. The Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. 103 rejection of record.

Claims 22-25 depend from claim 21 and inherit each limitation there from. As such, claims 22-25 set forth limitations not taught or suggested by the Examiner’s proposed combination. Therefore, claims 22-25 are patentable at least for the reasons set forth above with respect to claim 21.

Claim 26 recites “wherein said means for supporting is disposed on a first side of said means for distributing, said means for distributing comprises...connectors disposed on a second side of said means for distributing.” In the Current Action the Examiner equates Bellinghausen, at FIG. 1 numeral 8 to a means for supporting, FIG.1 numeral 22 to a means

for distributing, and FIG. 1 numeral 32 to connectors disposed on a second side of means for distributing. (*see* Bellinghausen FIG. 1; Current Action pgs. 2-3). However, the foregoing components of Bellinghausen do not meet the above limitations. Reference to Bellinghausen, at FIG. 1, makes clear that member 8 meets member 22 on the same side that connector 32 extends from member 22. As such, connector 32 and member 8 are on the same side of member 22 (e.g., a first side of a second means for distributing). Therefore, Bellinghausen fails to teach or suggest at least connectors disposed on a second side of a means for distributing.

Claim 26 also recites “means for dissipating heat generated by electronics of said means for distributing, wherein said means for dissipating is attached to said means for supporting.” In the Current Action the Examiner points to Bellinghausen, at col. 3 lines 26-34, to satisfy “at least one heat sink...” (see Current Action, pg. 3). However, at the Examiner’s citation Bellinghausen merely describes coupling a heat dissipating member to a bridge rectifier to dissipate heat from a molded heat sink by conduction. *see* Bellinghausen col. 3, lines 29-31. Further inspection of Bellinghausen reveals that Bellinghausen teaches away from using a means for dissipating heat generated by electronics of said means for distributing, wherein said means for dissipating is attached to said means for supporting. Bellinghausen, at col. 3 lines 50-55, discloses that the surface of a bridge rectifier is in direct contact with a printed circuit board to help in dissipating the heat generated within the bridge rectifier by conduction. As such, Bellinghausen relies on a printed circuit board rather than a heat sink to dissipate heat. Also, reference to FIG. 1 shows that, when assembled, the Bellinghausen invention cannot employ a means for dissipating heat...attached to a means for supporting. The top surface of the bridge rectifier is in direct contact with the printed circuit board and its bottom surface is in direct contact with member 22. This configuration leaves no room for a means for dissipating heat attached to a means for supporting. As such, Bellinghausen fails to teach or suggest means for dissipating heat generated by electronics of said means for distributing, wherein said means for dissipating is attached to said means for supporting as required by claim 26. Kelly is not relied upon to teach or suggest this missing limitation.

Claim 26 further recites “power and control signals distributed to said plurality of blade elements by said means for distributing.” In the Current Action the Examiner points to Kelly, at col. 4 lines 66-67, to satisfy “power and control signals distributed by a second circuit board...” (see Current Action, pg. 3). However, at the Examiner’s citation Kelly describes combining power and electronic control circuits in an economical manner to minimize package size and substrate area. see Kelly col. 4 line 66-col. 5, line 2. The express purpose of Kelly is to conserve substrate area; and in doing so, Kelly requires that power and electronic circuits be contained on a single substrate. see *id*; see Kelly figure 1. If Bellinghausen were modified according to the Examiner’s suggestion, a single board would be required. In such case, every element of the Applicant’s claimed invention would not be met. The Applicant respectfully submits that simply combining power and electronic control circuits to minimize substrate area does not teach or suggest power and control signals distributed by a second circuit board to a plurality of blade elements coupled to said first circuit board as required by claim 26. As seen, the Examiner’s proposed combination does not teach or suggest every element of the Applicant’s claimed invention. Therefore, the Examiner’s proposed combination fails to comport with the requirements of 35 U.S.C. 103. The Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. 103 rejection of record.

Claims 27-29 depend from claim 26 and inherit each limitation there from. As such, claims 27-29 set forth limitations not taught or suggested by the Examiner’s proposed combination. Therefore, claims 27-29 are patentable at least for the reasons set forth above with respect to claim 26.

Claim 30 recites “said first circuit board being disposed on a first side of said second circuit board” and “said second circuit board comprising...connectors disposed on a second side of said second circuit board.” In the Current Action the Examiner equates Bellinghausen, at FIG. 1 numeral 8 to a first circuit board, FIG.1 numeral 22 to a second circuit board, and FIG. 1 numeral 32 to connectors disposed on a second side of said circuit board. (see Bellinghausen FIG. 1; Current Action pgs. 2-3). However, the foregoing components of Bellinghausen do not meet the above limitations. Reference to Bellinghausen, at FIG. 1, makes clear that member 8 meets member 22 on the same side that connector 32

extends from member 22. As such, connector 32 and member 8 are on the same side of member 22 (e.g., a first side of a second circuit board). As such, Bellinghausen fails to teach or suggest at least connectors disposed on a second side of a second circuit board.

Claim 30 also recites “at least one heat sink attached to said first circuit board and contacting electronic components on said second circuit board.” In the Current Action the Examiner points to Bellinghausen, at col. 3 lines 26-34, to satisfy “at least one heat sink...” (see Current Action, pg. 3). However, at the Examiner’s citation Bellinghausen merely describes coupling a heat dissipating member to a bridge rectifier to dissipate heat from a molded heat sink by conduction. *see* Bellinghausen col. 3, lines 29-31. Further inspection of Bellinghausen reveals that Bellinghausen teaches away from using a heat sink in the configuration relied upon by the Examiner in rejecting the claim. Bellinghausen, at col. 3 lines 50-55, discloses that the surface of a bridge rectifier is in direct contact with a printed circuit board to help in dissipating the heat generated within the bridge rectifier by conduction. As such, Bellinghausen relies on a printed circuit board rather than a heat sink to dissipate heat. Also, reference to FIG. 1 shows that, when assembled, the Bellinghausen invention cannot employ a heat sink. The top surface of the bridge rectifier is in direct contact with the printed circuit board and its bottom surface is in direct contact with member 22. This configuration leaves no room for a heat sink. As such, Bellinghausen fails to teach or suggest a heat sink attached to a first circuit board and contacting electronic components on a second circuit board as required by claim 21. Kelly is not relied upon to teach or suggest this missing limitation.

Claim 30 further recites “wherein said control signals are bi-directional control signals being one of data signals and power signals that can be passed back and forth through one or more of said blades.” As the Applicant best understands, the Examiner acknowledges that neither Bellinghausen or Kelly teaches or suggests “wherein said control signals are bi-directional control signals being one of data signals and power signals that can be passed back and forth through one or more of said blades.” Nevertheless, the Examiner opines that “in absence of any showing criticality of the applicant...it would have been obvious of modification since such change solves no stated problem.” (*see* Current Action, pg. 3). The Applicant respectfully points out that the Examiner’s rejection is faulty in so much as a

"showing of criticality" is not required. Nevertheless, the Applicant points out that the claimed invention solves the problem of limitations on electronic board efficiency. Specifically, bi-directional control signals facilitates a decrease in component density. As such, heat generation is decreased so that less air volume is required to sufficiently cool the board components. As seen, the Examiner's proposed combination does not teach or suggest every element of the Applicant's claimed invention. Therefore, the Examiner's proposed combination fails to comport with the requirements of 35 U.S.C. 103. The Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. 103 rejection of record.

Claims 31-34 depend from claim 30 and inherit each limitation there from. As such, claims 27-29 set forth limitations not taught or suggested by the Examiner's proposed combination. Therefore, claims 31-34 are patentable at least for the reasons set forth above with respect to claim 34.

### **Conclusion**

In view of the remarks contained herein, the Applicant believes the pending application is in condition for allowance. The Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 08-2025, under Order No. 200315828-1 from which the undersigned is authorized to draw.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as Express Mail, Airbill No. EV482724208US in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date of Deposit: January 13, 2006

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Respectfully submitted,

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